

SECTION 04300

UNIT MASONRY SYSTEM

This specification section does not satisfy the UBC requirements for work with special inspection. Specify additional inspection and quality control requirements if work is to meet the UBC requirements for work with special inspection. Edit to suit job requirements.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Unit masonry system.

1.2 LANL PERFORMED WORK

- A. Mortar and grout field testing per PART 3, Field Quality Control.

1.3 SUBMITTALS

- A. Submit the following in accordance with the requirements of Section 01300.
 - 1. Catalog data on reinforcing, joint devices, attachment accessories, and admixtures.
 - 2. Certificate of compliance for concrete masonry units and reinforcing steel.
 - 3. Grout and mortar design mixes and test reports.
 - 4. Shop drawings indicating bar sizes, spacings, locations and quantities of reinforcing steel, bending and cutting schedules, supporting and spacing devices.

1.4 QUALITY ASSURANCE

- A. Ensure masonry openings and reinforcing in cells that are to receive grout are inspected prior to grouting. Ensure materials are in accordance with Section 2.1 before proceeding with placement of masonry.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not lay masonry when the temperature of the outside air is below 40 degrees F, unless approved by the Contract Administrator.
- B. Do not lay masonry when the temperature of the outside air is above 90 degrees F, unless approved by the Contract Administrator.

1.6 PROTECTION

- A. Maintain protective boards at exposed external corners. Provide such protection without damaging completed work.
- B. Keep expansion joint voids clear of mortar.
- C. Provide temporary bracing during masonry erection.

PART 2 PRODUCTS

2.1 MATERIALS

Structural engineer will specify materials.

- A. Provide structural concrete block, hollow, load bearing, light weight, concrete masonry units conforming to ASTM C90, Grade N-1. See Drawings for size.
- B. Provide mortar mix conforming to ASTM C270, Type [M], with a 28 day compressive strength of [2500 psi].
- C. Grout Mix:
 - 1. Provide grout mix conforming to the requirements of ASTM C476.
 - 2. Mix and Deliver grout in accordance with ASTM C94.
 - 3. Provide grout meeting the following criteria:
 - a. 28 day compressive strength: [3,000 psi]
 - b. Slump: [8-10 inches]
- D. Provide reinforcing steel conforming to ASTM A615, Grade [40].
- E. Provide joint reinforcement, truss type, [9] gauge, conforming to ASTM A82.

PART 3 EXECUTION

3.1 PREPARATION

- A. Verify items to be built-in masonry are properly located and sized.
- B. Verify lines, levels and coursing agree with the Drawings.

3.2 MASONRY INSTALLATION

- A. Construct masonry within the following tolerances:
 - 1. Bed Joint:
 - a. Thickness: Plus or minus 1/8 inch.
 - b. Level: Plus or minus 1/4 inch in 10 feet, 1/2 inch maximum.
 - 2. Head Joint:
 - a. Thickness: Plus or minus 1/8 inch.
 - b. Vertical Alignment: Plus or minus 1/4 inch in 10 feet, 1/2 inch maximum.
 - 3. Wall Alignment:
 - a. Vertical: Plus or minus 1/4 inch in 10 feet, 1/2 inch maximum.

- b. Horizontal: Plus or minus 1/4 inch in 10 feet, 1/2 inch maximum.
- 4. Top Surface of Bearing Walls:
 - a. Variation in level between adjacent roof framing: 1/8 inch in 10 feet.
- B. Perform job site cutting of masonry with power tools to provide straight and unchipped edges.
- C. Lay masonry in full bed of mortar jointed with other courses.
- D. Do not shift or tap masonry after mortar has taken initial set.
- E. Remove excess mortar.
- F. Provide cleanout openings in cells to receive grout. Clean all cells before placing grout.
- G. Remove any overhanging mortar or obstruction through cleanout.
- H. Provide an unobstructed continuous vertical cell measuring not less than 2 inches by 3 inches for cells to be grouted.
- I. Seal clean out before grouting.
- J. Fill cells containing reinforcement with grout.
- K. Consolidate grout at time of pour by puddling or vibrating and then reconsolidated by puddling again, before plasticity is lost.
- L. Place grout in 4 foot lifts.
- M. When grouting is interrupted for 1 hour or more, provide a 1-1/2 inch construction joint.

3.3 REINFORCEMENT

- A. Provide vertical reinforcement supports at top and bottom and at intervals not exceeding 19 inches.
- B. Provide lap splices in masonry reinforcement conforming to the requirements of the UBC. Minimum lap splice is not less than 40 bar diameters.

3.4 CONTROL JOINTS

- A. Construct control joints as indicated on the Drawings.

3.5 CLEANING

- A. Remove excess mortar and smears upon completion of masonry work.
- B. Point or replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces using a non-acidic solution which does not harm masonry or adjacent materials. Consult masonry manufacturer for acceptable cleaners. Use non-metallic tools in cleaning operations.

3.6 FIELD QUALITY CONTROL

- A. A certified testing agency will be employed by LANL to perform field testing. LANL will provide test reports to the Contractor.

1. Grout samples will be taken for testing in accordance with ASTM C1090 for [compressive strength and slump].
 2. Mortar samples will be taken for testing in accordance with ASTM C780 for [compressive strength].
- B. Frequency of tests
1. One test per each [5,000] square feet of wall area, but not less than one test per project.
- C. Provide the following services to facilitate testing and inspection.
1. Provide unobstructed access to work and cooperate with appointed testing Laboratory.
 2. Submit proposed mix design of grout and mortar to the Contract Administrator for approval prior to commencing work.
 3. Inform the Contract Administrator 48 hours in advance when work or portions of work are completed and require testing.

END OF SECTION